Inspira- Journal of Modern Management & Entrepreneurship (JMME)
ISSN : 2231–167X, Impact Factor: 5.647, Volume 10, No. 03, July, 2020, pp. 01-06

SOLAR ENERGY INDUSTRY IN JHARKHAND STATE: A POTENTIAL MEDIUM OF EMPLOYMENT GENERATION AND ENTREPRENEUR DEVELOPMENT

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ABSTRACT

Solar power is the conversion of sunlight into electricity, either directly using photovoltaic or indirectly using concentrated solar power. Concentrated solar power systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. Solar Energy is the best alternative of energy in the world which is cost-effective, eco friendly, long –lasting, high in return in comparison with the investment, low infrastructural demanding medium of energy. It plays very vital role to fill up the gap of different traditional source of energy. Entire world is using solar energy it's helping to control pollution. Jharkhand the 28th state of India with 2.69 cr. Population and the people, industries are not getting proper power supply, to promote renewable energy and ensure power supply in rural and urban area's the govt. Of Jharkhand incorporated Jharkhand Renewable Energy Development Agency (JAREDA) in the year 2001, JAREDA in working for implementation of fiscal and financial incentives made available by MNRES and IREDA. JAREDA has framed many programmes for proper power supply through providing SOLAR Lanterns Solar Power Grid, Solar Water Heater, Solar Charger JAREDA have successfully done 1552 Remote village electrification programme, 150 Kilowatt Power plant, developed state level solar power park, 312.5 Kwp at police stations and many more simontinously for encouraging these products usages MNRE and JAREDA is also providing Subsidy on purchase of these products. Solar Energy Industry has huge potential for Employment generation as this is the fastest growing sector in the country as per the geographical structer of Jharkhand state and Naxal Problems the government of Jharkhand is not able to provide electricity to every household of the state and at the same time solar energy is one time investment with 25 years of sustainability with higher rate of return in terms of saving the energy.

KEYWORDS: *Solar Energy Industry, Employment Generation, Service, Government Subsidy*.

Introduction

Historical Background of Solar Energy Industry in India

For the development of solar Energy Industry, in 1992, the Government of India established MNRE, the world's first ministry committed to renewable energy. MNRE is dedicated to expanding contributions of renewable energy in all of India's end-use sectors and undertakes policy and planning activities to that end. MNRE also supervises national-level renewable energy institutes such as the Solar Energy Centre and the Centre for Wind Energy Technology. The Indian Renewable Energy Development Agency (IREDA) provides financial support and innovative financing for renewable energy and energy efficiency projects with funds from the Indian government and multilateral lending agencies. IREDA also administers the central government's renewable energy incentive programs. Other government institutions with direct responsibilities that extend into renewable energy include several units under the Ministry of Power, the Planning Commission, and the Prime Minister's Council on Climate Change. The Government of India has enacted several policies to support the expansion of renewable energy.

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Solar Home Appliances

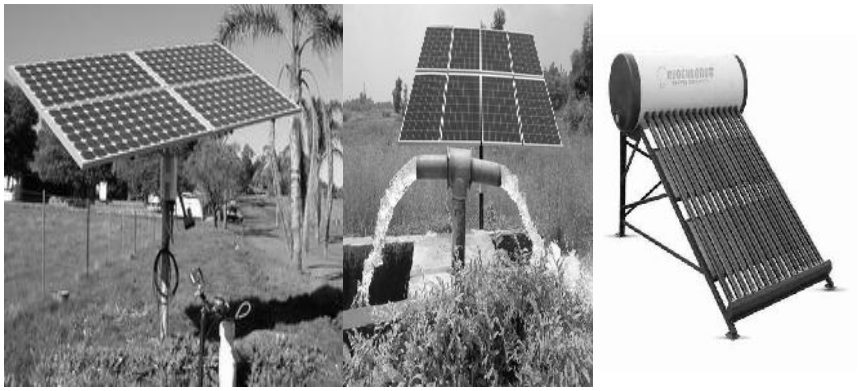
India is densely populated and has high solar isolation, an ideal combination for using solar power in India. Much of the country does not have an electrical grid, so one of the first applications of solar power has been for water pumping; to begin replacing India's four to five million diesel powered water, each consuming about 3.5 kilowatts, and off-grid lighting. Some large projects have been proposed, and a 35,000 km area of the The Desert has been set aside for solar power projects, sufficient to generate 700 to 2,100 Gigawatts. The Indian Solar Loan Program, supported by the United nation Environment Program has won the prestigious Energy Globe World award for Sustainability for helping to establish a consumer financing program for solar home power systems. Over the span of three years more than 16,000 solar home systems have been financed through 2,000 bank branches, particularly in rural areas of South India where the electricity grid does not yet extend. Launched in 2003, the Indian Solar Loan Program was a four-year partnership between united nation Environment Program, the united nation Environment Program, and two of India's largest banks, the Canara Bank and Syndicate Bank.

Solar Roof Top and Solar E Rikshaw

Gradually Development of Solar Energy Industry in India

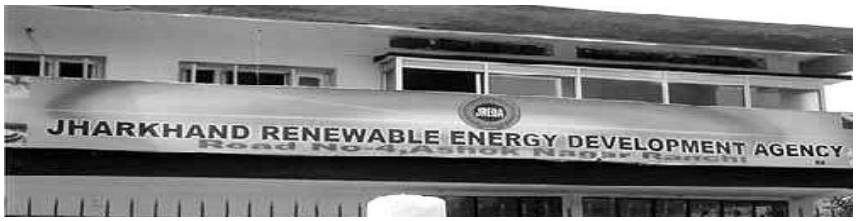
India has over 17 GW of installed renewable power generating capacity. Installed wind capacity is the largest share at over 12 GW, followed by small hydro at 2.8 GW. The remainder is dominated by bioenergy, with solar contributing only 15 MW. The Eleventh Plan calls for grid-connected renewable energy to exceed 25 GW by 2012. JNNSM targets total capacity of 20 GW grid-connected solar power by 2022. Renewable energy technologies are being deployed at industrial facilities to provide supplemental power from the grid, and over 70% of wind installations are used for this purpose. Bio fuels have not yet reached a significant scale in India.

India's Ministry of New and Renewable Energy (MNRE) supports the further deployment of renewable technologies through policy actions, capacity building, and oversight of their wind and solar research institutes. The Indian Renewable Energy Development Agency (IREDA) provides financial assistance for renewable projects with funding from the Indian government and international organizations; they are also responsible for implementing many of the Indian government's renewable energy incentive policies. There are several additional Indian government bodies with initiatives that extends into renewable energy, and there have been several major policy actions in the last decade that have increased the viability of increased deployment of renewable technologies in India, ranging from electricity sector reform to rural electrification initiatives. Several incentive schemes are available for the various renewable technologies, and these range from investment-oriented depreciation benefits to generation oriented preferential tariffs. Many states are now establishing Renewable Purchase Obligations (RPOs), which has stimulated development of a tradable Renewable Energy Certificate (REC) program.



Solar Street Light, Solar Water Pump, Solar Water Heater

Controlling Authority of Solar Energy Industry of Jharkhand-Jharkhand Renewable Energy Development Agency (JAREDA)



The Jharkhand Renewable Energy Development Agency (JREDA) is incorporated as a society act in year 2001 under the administrative control of the Department of Energy, Govt. of Jharkhand for promoting use of renewable energy sources in the state. Being a nodal agency JREDA is working for implementation of fiscal and financial incentives made available by the Ministry of Non and Renewable Energy Sources (MNRES), Govt. of India and Indian Renewable Energy Development Agency (IREDA).

It is at present implementing agency for various central and state government sponsored **schemes/ projects in the area of renewable energy in the State.**

Functions of Jharkhand Renewable Energy Development Agency (JREDA)

- Planning of the renewable energy in the state.
- Organizing of the Resource required for renewable energy.
- Bidding of the tenders for the development of alternative energy sources.
- Inspection of the products.
- Allotment of subsidy to the beneficiary.
- Allotment of fund for the development of renewable energy.

Solar Energy Industry in Jharkhand

Jharkhand the 28th state of Indian union best known for its rich mineral resources. Inspite a very large part of rural people they are still not getting proper power supply in these area. The total population of Jharkhand is about 2.69crores.Out of total population lives in rural areas. JAREDA has framed many programmes for proper power supply through providing SOLAR Lanterns Solar Power Grid, Solar Water Heater, Solar Charger simontinously for encouraging these products usages Many Banks are Providing Loans for purchase of these products and govt. of India Ministry of Non Renewable Energy and JAREDA is also providing Subsidy on purchase of these products.

Government of Jharkhand realizes the importance of energy conservation as a major thrust of the energy policy. There is need to have a system that encourages energy conservation and provides disincentives for inefficient use of energy. Government of Jharkhand would promote measures for economy and efficiency in energy consumption.

Government of Jharkhand would in consultation with the State Regulatory Commission to formulate a comprehensive Demand Side Management policy covering the tariff measures.

Solar Aero Plane, Solar Petrol Pump

Solar Energy Industry and Policy and employment Generation in Jharkhand State: - As we have seen there is huge opportunity in the state of Jharkhand due to the geographical structer and Naxal Problems in Jharkhand. The government of Jharkhand has policy frame work to develop and encourage the entrepreneur to develop power grid in state and for different solar products.Main Players of Solar Energy Industry in Jharkhand the Vendor or Distributor or Manufacturer of Jharkhand.

Sl. No.	Name of the Firm	Year Establishment	Employee Strength	Turn over of company (Rs. in corers)	Product Segment	Working Area
1.	P.C.B. Pvt. Ltd., 14-SIRTDO, Industiral Estate, Mesra, Ranchi	2001	35	2.40	Solar Water Heater, Street Light & Laltern	Ranchi, Jamshedpur and Dhanbad
2.	Abhishek Industries, Kanke Road, Ranchi	2002	25	2.50	Solar Water Heater, Street Light & Laltern	Ranchi, Jamshedpur and Dhanbad
3.	Sunson Enterprises, H.B. Road, Ranchi	1999	15	4.50	Solar Water Heater, Street Light & Laltern	Ranchi, Jamshedpur, Khunti, Lohardaga, Gumla and Simdega
4.	Aditya Solar Shop, Tharpakhna, Ranchi	2003	03	40.00 lacs	Solar Water Heater & Laltern	Ranchi
5.	Kamla Instruments, cooperative, Ashok Nagar Ranchi	2002	22	6.50	Solar Water Heater, Street Light & Laltern	Ranchi, Jamshedpur, Khunti, Lohardaga, Gumla and Simdega
6.	A.V. Enterprises, Sainik Market Ranchi	2011	06	1.10	Solar Water Heater & Laltern	Ranchi
7.	Trinity Creations, Hesal Gas Godown Road, Piska Mode, Ranchi	2009	10	2.5	Solar Water Heater, Street Light & Laltern	Ranchi, Jamshedpur and Dhanbad
8.	Sigma Steel Engineers (P) Ltd.	2001	25	5 approx	Solar Water Heater, Street Light & Laltern	Ranchi, Jamshedpur and Dhanbad
9.	Polestar Holdings, Tirumlala Industrial Estate	2001	25	5 approx	Solar Water Heater, Street Light & Laltern	Ranchi, Jamshedpur and Dhanbad
10	Anisha Enterprises	2012	08	1.60	Solar Water Heater, Street Light & Laltern	Ranchi, Jamshedpur and Dhanbad

As per the Record of JAREDA year 2012

The above data itself describe clearly that the solar energy industry scope and growth rate of Jharkhand although it can be said the expected growth rate is much higher that then the performing rate of the organizations.

Self Employment opportunities in solar energy industry in Jharkhand state in the category are:

- **Starting a Retail Sales Counter:** As all of know very well that traditional style of business is the providing goods to the customer's at the retail counter by which a personal can take his livelihood ahead with good rate of return for this the Retailer need to have following skills
  - Good Communication Skill
  - Interpersonal Skill
  - politeness
  - Technical skill (so that the benefit of solar product can be explained to consumer's)
- **Starting a Manufacturing unit or Assembling Unit:** As the government of Jharkhand has Drafted the policy for State Solar Power Policy 2015 which is very motivating for new entrepreneur and the investor's for Jharkhand state in which they have made each and every point related with the land acquire, Investment, License, PPP module, Distribution of Energy, Market Place for solar products, Promotion scheme's, Subsidy, to encourage the investor's to start a business related with the solar in the state which itself will be the self employment generation and mass employment generation.
- **Service Vendor:** In solar industry there is huge demand of Service provider as in last few Decades the government and JAREDA have seen only few players are there in the market who are supplying the solar good's to JAREDA or Jharkhand Market so they highly demand the service personals for to cater the market the service cycle of solar energy industry run as follows :
  - **When Product has been approved, completed, subsidies by JAREDA Tender**

  CONSUMER (Government or Business or Consumer who avail Subsidy) – JAREDA (Regulatory body for Solar Energy industry for State and subsidy approval Body) – COMPANY (who have provided the Product) – Vendor (the Companies who are listed with JAREDA as vendor and worked in behalf of the Company in the order provided goods and completed the purchase Tender) – Indivual Service Provider or Firm (who assemble the product and technically known for service)
  - **When Indivual Consumer had avail the product from open Market**

  Consumer – Company – Local Distributor – Indivual Service provider

  In both buying cycle it can be understand that there is huge potential market for service provider in the solar energy industry and well technical qualified personal have excellent opportunity in the solar energy industry.

List of Solar-Powered Products Available in the Market

- Solar air conditioning
- Solar balloon
- Solar charger
- Solar backpack
- Solar cell phone charger
- Strawberry Tree
- Solar chimney
- Solar calculator
- Solar-powered waste compacting bin
- Solar cooker
- Solar dryer
- Solar-powered fan
- Solar furnace
- Solar inverter
- Solar-powered Stirling engine
- Solar-powered watch
- Solar-pumped laser
- Solar roadway
- Solar Spark Lighter
- Solar still
- Solar tree
- Solar vehicle
- Solar balloon
- Solar boat
- Tûranor PlanetSolar
- Solar bus
- Solar car
- Solar golf cart

- Solar keyboard
- Solar lamp
- Solar pond
- Solar road stud
- Solar-powered flashlight
- Solar notebook
- Solar-powered calculator
- Solar-powered desalination unit
- Solar-powered pump
- Solar-powered fountain
- Solar-powered radio
- Solar-powered refrigerator
- Solar panels on spacecraft
- Solar sail
- Solar thermal rocket.
- Tracker
- Windmill
- Fan
- Computer
- List of pioneering solar buildings
- List of solar thermal power stations
- List of photovoltaic power stations
- Solar power
- Solar water heating

Suggestion and Conclusion

There is huge possibilities to serve the solar energy industry in the Jharkhand state due to its geographical and Naxal Problems in Jharkhand at the same time the industry have got huge potential to provide the energy at very economical rate with subsidy by the state and central government to promote the solar energy industry in the nation development and it has got huge potential to generate the self employment for the residents of Jharkhand although it require some technical and commercial knowledge and it the state government focus on training part of the people they will generate employment for them or employment can be generated in the state.

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